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ABSTRACT

Reforestation is desperately needed in India. Three-fourths of the country's ground surface is experiencing desertification, and primitive forests are being destroyed. Reforestation would help moderate temperatures, increase ground water levels, improve soil fertility, and alleviate a wood shortage. In the past, people from the United States, such as Samuel Stokes, have helped India with tree planting projects, and this document claims that further assistance is currently needed. A rural program, entitled "A People's Forestry Movement in India," has been established to build and staff a network of tree nurseries, tree clubs, and a society of nurserymen. Unless halted, worldwide destruction of tropical rain forests by the year 2000 may be the greatest ecological disaster that will ever occur; because, while only encompassing seven percent of the earth's land surface, rain forests contain one-half of the world's animal and plant species. (JHP)

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PLANTING TREES IN INDIA

by

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PLANTING TREES IN INDIA

James Marlin Oswald

Reforestation is desperately needed in India. Though as much as a quarter of the land surface remains under tree cover in vast ecological preserves, at least three-fourths of the earth surface in India is experiencing desertification. Primitive forests are being destroyed and negative consequences of human activity abound.

India is too hot. Reforestation is needed to moderate temperatures and to provide sanctuary for people and other creatures who have suffered as deforestation has accelerated during recent centuries. Ancient Indian literatures describe cool forests, seeping springs, flowing water, and ponds. Today India is largely a baked dry arid land which current writers describe as ravaging with intense heat and everpresent dust.

India is too dry. Groundwater levels have dropped in nearly all areas of this vast sub-continent which is two-thirds the size of the continental United States. Many wells have gone dry and some produce only salty water unfit for drinking or irrigation. The rivers save India as they have been dammed here and there to generate electricity and stabilize irrigation of productive valleys, but they are cutting wildly

through deforested, droughty, sandy clay remains of former soils as seasonal rains wreak havoc by flooding and redistributing soils. The slow, steady percolation of water through humus rich soils trickling into creeks to supply steady flowing streams are characteristics of forest lands. Before modernization with twentieth century technologies and following three centuries of British colonialism, India was a land of forests. The twelve forests of Vrindavana, where God in the form of Krishna is recorded in Bhagavad Gita and other scriptures as having appeared some 5,000 years ago, have been cut down, plowed under, and desertified. But they can be restored and the Yamuna River Valley which flows by Delhi, Vrindavana, and Agra merging into the Ganges can again be a rich land of trees, flowers, milk, and honey. The renewal process has already been started.

India is too infertile. Human population is relatively in ntrol as marriage is delayed and family planning is accepted widely - but soil fertility is declining as chemical fertilizers are used to prop up food production. Animal manures and organic residue (including leaves, bark, sawdust, and other micro-organism rich decaying materials) are in short supply. Trees are often scrubby as the land's capability for supporting them has deteriorated. Underground water has been pumped out and in a few areas polluted. Healing humus is needed in all soils. Following centuries of intensive cultivation, sandy and clay soils have lost humic structures restorable only by organic matter - and no remediation will be

as economical and generally beneficial as the planting of trees everywhere possible in India. The highly productive agriculture needed for a prosperous healthy future requires arboriculture on a massive scale.

India needs tree planting.

There are positive responses to the reforestation opportunity among contemporary Indians to indicate that current efforts are already bearing fruit. The government term for what is occurring is "social reforestation" which includes the concepts of ecological-environmental improvement along with recreation and moral-ethical land use. It is typical for a traveler to see newly planted tracts of trees, often protected by barbed wire and signs urging cooperation: "SURVIVAL OF MANKIND DEPENDS ON SURVIVAL OF PLANTS AND ANIMALS." Some of these preserves are in populated areas, even in the centers of villages - for the heart of the problem and the future is in education and there are at least 576,000 villages in India whose residents need to re-learn the value of caring well for local forests. Trees cannot be planted faster than they can be cut down for firewood unless people cooperate - and generally in contemporary tree deficient India they do.

Still, there is a wood shortage. Timber is imported, for demand exceeds the supply. Ancient Baobab trees providing canopy supported by clusters of trunk and root columns are

scarce as stately American Elms and five hundred year old oaks in Pennsylvania. "Progress" has taken its toll.

What happened in Pennsylvania during the first half of this century to improve the status and state of trees is commencing in India: There is realization that unsystematic unproductive tree cutting has gone too far, and understanding that millions and millions of trees will have to be planted and cared for until a more stable and productive ecology can develop. India is at the tree protection stage of awareness, moving into systematic planned tree planting by government and private for-profit and non-profit enterprises. Logically, eroded hillsides and unproductive parched valleys are initial targets. In the deserts new oases are being formed following early California and contemporary Israeli models. Northeast over the Himalayas China has leaped ahead in the reforestation effort and provides another model Indian policy makers and cultural leaders can observe.

There are problems. But there is also opportunity, and given that the United States is a dear old friend of the world's largest constitutional democracy as well as its major trading partner, there seems to be every reason for Americans to assist India in the reforestation endeavor. India needs tree seeds, seedlings, money to buy and plant seeds and seedlings and to pay some planters. And maybe there are also somewhat less direct ways to help India reforest: If we work to keep oil prices down and can de-politicize and de-militarize South

Asia, the Indian economy can afford fuel and avoid increasing defense expenditures which will leave more funds for meeting social needs - including social reforestation. Directly and indirectly, United States citizens and organizations and governments will benefit the world, enhancing the future, by even the smallest efforts to assist with the planting of trees in India.

Misconceptions prevail regarding this ancient civilization. It is not one culture but many blended. It has not one language but hundreds, no other nation has so many. It is unique in bridging ancient and modern times - Varanasi, called by the British Benares, was an ancient city when Rome became a crossroad village of huts. India with 435 humans per square kilometer is not as crowded as Italy (452), Germany (626), Japan (715), Netherlands (830), South Korea (853), England (911), Taiwan (1,064), Bangladesh (1,361), or Java (1,533), though is is more densely populated than the Philippines (331), Vietnam (308), France (241), Indonesia (217), China (213), and The United States (56). European cultures are Indo-Aryan, rooted in Indian language (Sanscrit is the mother of European tongues), customs (European dress followed Indian styles until recent centuries), foods (the spices and vegetables Indians use are basically the same as are found in European and American markets), cow-herding (cattle originated in Asia and cow herding migrated through India to Europe over the past thousand years), architecture (India developed houses, castles, and moats before Europeans), gardens (the

predecessors of Euro-American formal and informal gardens are in South Asia nearer the "Garden of Eden"), and genealogically (race and ethnicity in India are connected with race and ethnicity in Europe, quite directly in fact: All shades of Indians from dark to light share what are called caucasoid features familiar to Euro-Americans. As to who had these features first, history favors the Indians who in the pre-Grecian days when their sub-continent centered culture of "Bharat" was considered to be "the world."). We have all but forgotten, but it was India to which Christopher Columbus was headed - hoping to preserve and increase trade with the "Mother India" of 1492. The British reached India at about the same time as their colonization of North America commenced in the early 1600's and Asian and American colonies shared several hundred years of parallel development - the "Magna Charta" signed by King John at Runneymede influenced the development of participative democracy in Britain and was followed centuries later in both America and India by citizen led revolutions and implementation of written consitutions. India as well as America wrestled with the plantation concept and system, surviving that experiment and various industrial and social revolutions which followed. The famed flag designed by Betsy Ross in Philadelphia is basically an adaptation of the flag of the British East India Company which flew over Calcutta, Madras, and Bombay for centuries. King George III not only had problems with America but also with India - and Indians with him.

An American, Elihu Yale, born of Puritan parents in Boston, moved with his parents back to England and in time became Governor General of Madras and founded the University of Madras before later retiring to London and financing the founding of his namesake, Yale University, on this side of the Atlantic.

Trade between this country and India dates back to the beginnings of colonialism and has continued without pause through the development of consitutional democracies in both nations. If it was the United States which first achieved political independence, it was India which first abolished slavery. And when the Civil War slowed U.S. cotton and indigo production, India gained the market. Friendly, cooperatively, peacefully, and beneficially competitively, India and the United States have been friends over time. These connections need to be written and publicized for the intertwining of the two great democracies carry messages of peaceful cooperation which reflect well in this troubled world.

A Pennsylvanian who became an Indian tree-planter in the early part of this century was Samuel Evan Stokes of Harmony Hall. In 1904, this young man arrived to work in a leper colony in the Simla Hills of India. He was twenty-two.

When an earthquake struck Kangara Valley, Stokes performed relief work. He visited Kotgarh and liked it so much he took

up redidence there. Moved, according to one source, by the "extreme poverty of the people," Samuel continued good works.

He married Agnes Benjamin, a Rajput girl, in 1912. Samuel adopted the Indian name of Satyanand and followed Mahatma Gandhi. He was arrested and served a jail sentence for protesting British colonial policies. The Stokes' children, raised and educated in India developed into leaders who served at the national legislative level.

Samuel, Satyanand, studied the Kotgarh climate and terrain and concluded that apples would probably grow well. He became India's "Johnny Appleseed," giving seeds to people and encouraging apple cultivation. Nearly seventy years later, Kotgarh apple orchards remain productive, and fresh apples are everywhere available in India. Apple juice is frequently served. The apple industry is vast, producing millions of cases of fruit each year, and in the Kotgarh region engaging, according to government sources, three-fourths of the people.

What is needed now in India are millions of "Johnny Tree Seeds." Whatever trees will grow in each of the diverse regions should be planted soon. Erosion by wind and water have gained hazardous control. The desertification process can be reversed, but time is short.

The Government of India has a tree planting scheme with "reforestation" billboards, advertisements, and demonstration

plots. Land set-asides for primitive nature preserves and reforestation are generous. There is general awareness that trees must be planted wherever possible.

Currently, Indian government costs are around two rupees per tree. For sixteen cents government projects can plant and tend a seedling in a nursery and transplant it to a permanent site.

A private project can achieve the same at half the cost with an additional benefit of developing a self-supporting nursey in each village. For eight cents - one rupee - a seedling can be raised and permanently planted. Young people provide labor, and permanent jobs are created around local tree nurseries. India needs jobs as well as trees. People aplenty need dignified work. This private reforestation scheme is ingenious in supporting labor and building a stable economic infrastructure based on trees. Long range, tree pruning can suport firewood businesses and mulches can rebuild soils; eventually fruit and nut and tree harvesting can produce wealth, while caring for large numbers of honest hard working people as in Pennsylvania and other forest states.

For every micro-clime and ecological niche in Pennsylvania, there is a counterpart in India. All fruit, nut, and timber trees known in Pennsylvania will grow somewhere in India. Though the sub-continent is nearer the equator than North America, altitude can make a great difference: Indian

highlands can be cool hosts to pine and spruce, maple and ash, oak and hickory.

"Protect propagate trees" is the motto of the "Millions of Trees Clubs" initiated by Ben Soans who heads "A School In Nature Education" at the Bishop A. J. Appasamy Centre, Greenlands Orchards, in Kodaikanal, South India. "Walk with Sri Rama, Sankara and Mahatma Gandhi for India's Glory" and "Plant or Perish" while "Trekking in Kodaikanal" participating in the "Wandering in Forests Movement." Soans leads Indian youths by precept and example as head of the organization honoring his horticulturist father, the G. G. Soans Memorial Farmers and Rural Afforestation Training Centre. Ben Soans in correspondence comparing Indian ecology with Pennsylvania's describes Kodaikanal "as a very beautiful former British Hill Station with a temperate climate where most of the trees you grow will succeed. There is an American International School here," he reports, "where they have planted a Canadian maple tree. So," he invites, "do send us the seeds of all trees of America and Canada for propagation here. Kindly send us instructions about sowing. You must also make sure that our customs does not impound parcels" and advises seed donors to fumigate according to United Nations Food and Agricultural Organization (FAO) regulations: "they will fumigate against pests and send as certified seeds..." and he counsels agricultural and forestry colleges can assist as well. Regarding "donations from foreign countries, " Soans advises, "please note that we now have strict regulations in India by

our Government. We can receive foreign donations only through our Registered Parent Society: G. G. SOANS MEMORIAL FARMERS' CENTRE, Sira Gate, Tumkur 572 106 (South India) and these are payable only to Corporation Bank, Tumkur Savings Bank Account No. 4515. Any large donation can be sent by your bankers to Corporation Bank, Tumkur Account No. 4515, Tumkur 572 106 (South India)."

The "A People's Forestry Movement in India" is a six-fold rural programme of: (1) People's Nurseries, (2) Trained Labour Brigades, (3) Annual Massive Tree Planting, (4) Farmers' and Youth Training in Afforestation Techniques, (5) Youth Involvement Programmes including Dibbling of Seeds and School Nurseries, and (6) A Nation Wide Chain of People's Van Vigyan Kendras - local organizations linking the national effort. Boys and girls work to honor the theme: Plant or Perish...Plant Trees Everywhere. Their goal is a network of People's Nurseries at sixteen kilometer intervals throughout India. Soans reports, "Between 1976 and 1985, the Millions of Trees Clubs have endeavored to establish models and now these models at Harekla, Muloor, Tumkur, and Kodaikanal have achieved these goals...in Karnataka and Tamil Nadu States.... This first Society of People's Nurserymen (and women) is now autonomous, on the principle of self-sustaining, people's organizations, totally autonomous ... the base of a nation wide people's forestry movement."

Soans' retired from the position of National Student Secretary of Y.M.C.A.'s in India to initiate this new movement. The Youth Hostels Association of India collaborated, 1974-1985 moved by two premises:

- "India's poorest, starved of fuelwood, shall soon be let on the vegetation with the destructive fury of locust hordes, for the final act of desertification, of which they shall be the first victims."
- "Destroy the Tree, You destroy the Soil
  Destroy the Soil, You destroy the Water
  Destroy the Water, You destroy the Nation
  and inherit a Desert."

"A World-wide Peoples Action Programme" is needed, according to Soans and other leaders "to save tropical rain forests whose destruction by 2000 A.D. will be the greatest ecological disaster for mankind." Without action, these outcomes are expected: "LOSS OF WILDLIFE - over 5,000,000 species of flora and fauna will disappear by 2,000 A.D.; SOIL EROSION - barren laterite hills where even a blade of grass will not grow will be left behind as seen now in Cherrapunji Hills blessed with 500" of rain; WATER DEPLETION - all perennial rivers, tanks, wells in an area receiving 100 to 200" of rain will dry up in hot summer months; and DESTRUCTION OF WESTERN GHATS - India's rich western ghats will be treeless...." The "only answer?": "TREES!"

On the global scale, RAINFOREST ACTION NETWORK (RAN) substantiates that "in tropical rainforests live an estimated half of the world's animal and plant species, yet tropical rainforests encompass only 7% of the earth's land surface....Rainforests are part of the life support systems of the planet. We cannot cut out our lungs and survive. We will save the rainforest because we must." In Central America rainforests have been and are being destroyed to increase cattle grazing area to produce low cost beef for the American fast food industry. Very recently activists led by RAN director Randy Hayes have won the cooperation of Burger King, the target of a national consumer boycott, which announced on July 20, 1987 "that they would no longer buy beef from tropical rainforest areas" and "rid" their system "of all rainforest beef," mostly from Central America, "by September 1, 1987." Macdonald's has already been required by the Government of Thailand to serve vegetarian burgers in order to be licensed to sell beef burgers. Of all things, the "Hamburger Connection" is a major cause of deforestation around the world.

Rainforest Action Network (300 Broadway, San Francisco, California 94133), has also moved the World Bank to consider proposals at its September 29, 1987 annual meeting: To stop funding rainforest destruction, hire 100 ecologists, and provide public access to information on projects which tax dollars are funding.

What happened in Pennsylvania to educate people regarding the essential value of trees under the leadership of French trained forester Gifford Pichot and the extensive Civilian Conservation Corps (CCC) has spread throughout the world. Pennsylvanians can take pride in being a model of numerous good forestry practices and surely has obligations to follow up and assist however possible with deforestation problems and reforestation therapies at home and elsewhere in the world.

Like most developing countries including the United States in past centuries, India also grazed away forest undergrowth, more with goats than cattle, and by timbering without replanting. Without Indian rainforest and Central American - and with Brazilian, Indonesian, and Malaysian rainforests also being devastated...the world is in trouble. Everyone on earth will be affected. It is very reasonable to send acorns to India and "plant millions of trees - everywhere."

James Marlin Oswald is an educator with Community College of Philadelphia. Author of "A Pledge of Allegiance to Humankind" (1972), EARTHSHIP (1972), and co-author of Planet Earth (1975), Our Home the Earth (1980), and hundreds of articles and monographs studying global human culture interrelating with nature, he consults on energy efficiency and energy education. Residing at 333 Bryn Mawr Avenue, Bala Cynwyd, Pennsylvania 19004 (215-664-8734) his zero runoff sloped property nurtures nineteen healthy and respected oak, hickory, and poplar trees along with dwarf black mulberry and sour cherry, and rhododendron, azalea, mountain laurel, pieris, raspberry, gooseberry, red currant, and black currant bushes all wood chip and leaf compost mulched and undergrown to provide a natural forest setting.